

**WHAT IS CLAIMED IS:**

- 5 1. An automatically and manually folded portable wireless terminal having at least a main body and a sub-body installed on the main body so as to be opened and closed, comprising:
- a first sensor for sensing a complete opening of the sub-body from the main body;
- a second sensor for sensing a complete closing of the sub-body onto the main body;
- 10 an opening/closing device for opening/closing the sub-body in accordance with a control of opening/closing of the sub-body and having a motor housed inside of the terminal;
- a motor overcurrent monitoring section for monitoring current flow to the motor to determine an overload condition of the motor; and
- 15 a control device for controlling operation of the motor in accordance with the overload condition as determined by the motor overcurrent monitoring section when complete opening/closing of the sub-body is sensed by the first and the second sensors when the opening/closing device automatically opens/closes the sub-body.
- 20 2. The automatically and manually folded portable wireless terminal of claim 1, wherein the motor overcurrent monitoring section comprises:
- a first node connected to a battery output line for applying a first voltage corresponding to the battery voltage to a first input end of the control device;
- a second node connected between the first node and the motor for applying a
- 25 second voltage, which corresponds to a current supplied to the motor, to a second input end of the control device; and
- a current sensing resistor located between the first node and the second node for sensing the current supplied to the motor from the first node through the second node.
- 30 3. The automatically and manually folded portable wireless terminal of claim 2, wherein the motor overcurrent monitoring section determines the overload condition of the motor based on a difference between the first voltage and the second voltage.



4. A method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, a first sensor for sensing a complete opening of the sub-body from the main body, and a second sensor for sensing a complete closing of the sub-body onto the main body, the method comprising the steps of:

determining whether or not a complete opening/closing of the sub-body is sensed by the first and the second sensors during automatic opening/closing of the sub-body;

determining an overload condition of a motor housed inside of the terminal based on current supplied to the motor if incomplete opening/closing of the sub-body is sensed; and

controlling operation of the motor in accordance with the determined overload condition.

5. The method of claim 4, wherein the determination of the overload condition of the motor is made based on a voltage difference corresponding to a current difference between the current supplied to the motor in normal operation and the current supplied to the motor in the overload condition.

6. A method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having a main body and a sub-body installed on the main body so as to be openable and closable, the method comprising the steps of:

operating a motor for automatically opening/closing the sub-body in accordance with an input by a user;

determining an overload condition of the motor for opening/closing the sub-body based on a voltage difference corresponding to a current difference between the current supplied to the motor in a normal operation and the current supplied to the motor in the overload condition; and

controlling operation of the motor for opening/closing the sub-body in accordance with the determined overload condition.

7. A method for controlling opening/closing of a sub-body in a foldable portable wireless terminal having at least a main body, a sub-body installed on the main



body so as to be openable and closable, a first sensor for sensing a complete opening of the sub-body from the main body, and a second sensor for sensing a complete closing of the sub-body onto the main body, the method comprising the steps of:

5 determining an overloaded state of a motor housed inside of the terminal based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed;

controlling opening/closing of the sub-body repeatedly as many times as predetermined if incomplete opening/closing of the sub-body has been sensed and the housed motor is in an overloaded state; and

10 returning the sub-body to an initial state if incomplete opening/closing of the sub-body is sensed and the overloaded state continues even after the controlling has been repeated the predetermined times.

8. A method for controlling opening/closing of a sub-body in an automatically and manually folded portable wireless terminal having at least a main body, a sub-body installed on the main body so as to be openable and closable, and a sensor for sensing a complete opening of the sub-body from the main body, the method comprising the steps of:

15 determining whether or not the sensor senses a complete opening of the sub-body during automatic opening;

determining an overloaded state of a motor housed inside of the terminal based on current supplied to the housed motor if incomplete opening is sensed by the sensor;

controlling opening of the sub-body as many times as predetermined if incomplete opening is sensed and the housed motor is determined to be in an overloaded state; and

25 ceasing operation of the housed motor if incomplete opening of the sub-body is sensed and the overloaded state of the housed motor continues even after controlling the opening of the sub-body the predetermined times.